

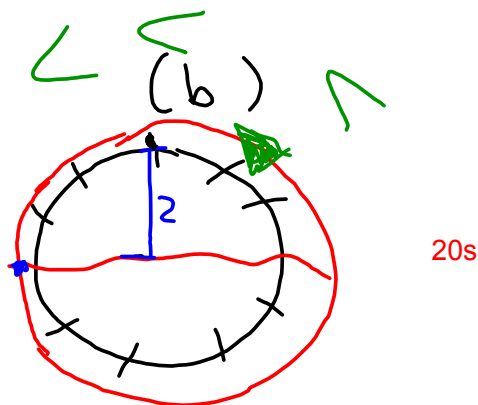
6.4 Comparing Sinusoidal Functions

p. 344-348

Sketch a height vs time graph of the sinusoidal function that models a water wheel with a radius of 2m, whose centre is at water level, and rotates every 20 sec. Assume that the first point is at water level entering the water.

Draw two cycles. Counter clockwise

b) nail starts at max height



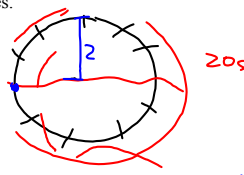
Apr 28-10:29 AM

6.4 Comparing Sinusoidal Functions

p. 344-348

Sketch a height vs time graph of the sinusoidal function that models a water wheel with a radius of 2m, whose centre is at water level, and rotates every 20 sec. Assume that the first point is at water level entering the water wheel.

Draw two cycles.



amplitude
axis of symmetry

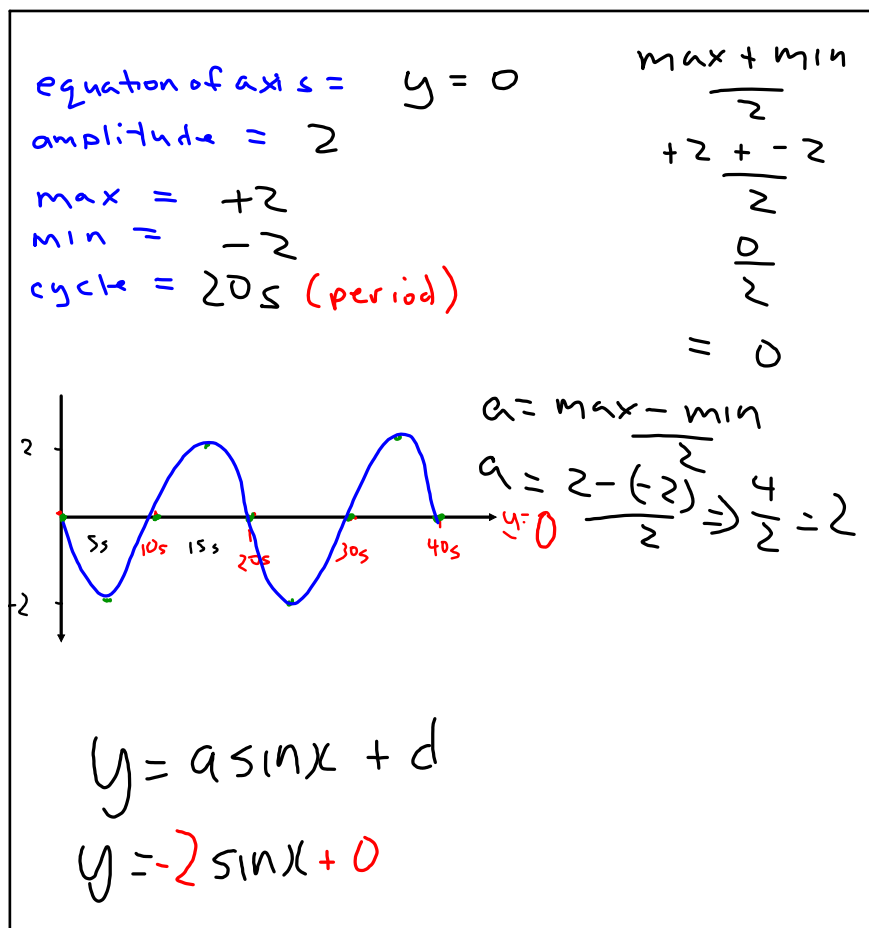
max 2m
min -2m
period 20s

$$\frac{\text{max} - \text{min}}{2} = \frac{2 - (-2)}{2} = \frac{4}{2} = 2$$

$$\frac{\text{max} + \text{min}}{2} = \frac{2 + (-2)}{2} = \frac{0}{2} = 0$$

| | |
|----|----|
| 0 | 0 |
| 5 | -2 |
| 10 | 0 |
| 15 | +2 |
| 20 | 0 |
| 25 | -2 |
| 30 | 0 |
| 35 | +2 |
| 40 | 0 |

Apr 28-10:29 AM

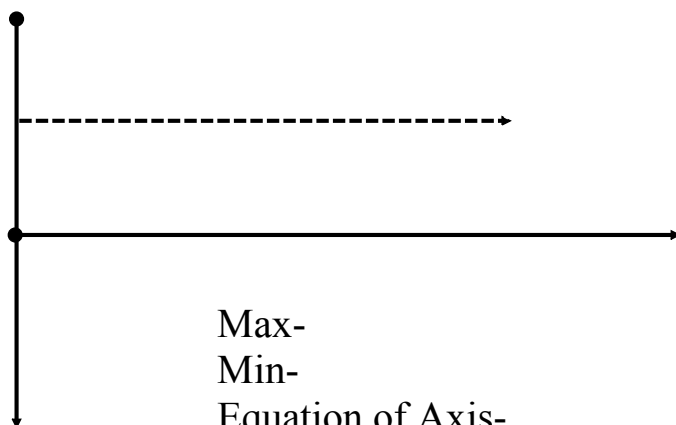


Apr 28-7:54 AM

p.348

3. Sketch a height-versus-time graph of the sinusoidal function that models each situation. Assume that the first point plotted on each graph is at the lowest possible height.

- a) A Ferris wheel with a radius of 9 m, whose axle is 10 m above the ground, and that rotates once every 60 s clockwise



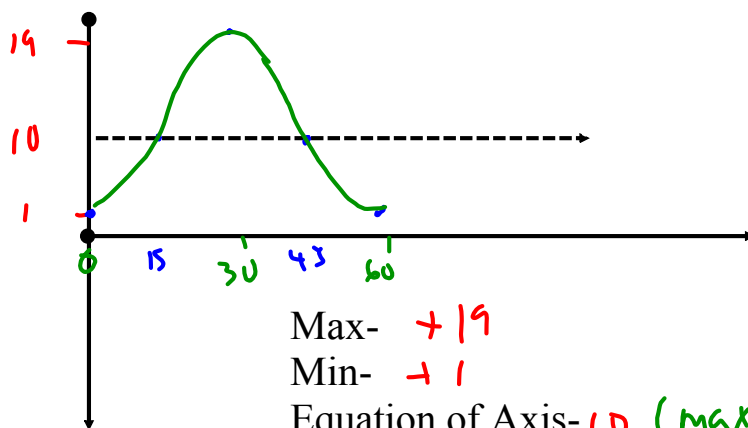
Max-
Min-
Equation of Axis-
Period-
Amplitude-

Nov 17-7:36 AM

p.348

3. Sketch a height-versus-time graph of the sinusoidal function that models each situation. Assume that the first point plotted on each graph is at the lowest possible height.

- a) A Ferris wheel with a radius of 9 m, whose axle is 10 m above the ground, and that rotates once every 60 s



Max- 19

Min- 1

Equation of Axis- 10 (max + min / 2)

Period- 60

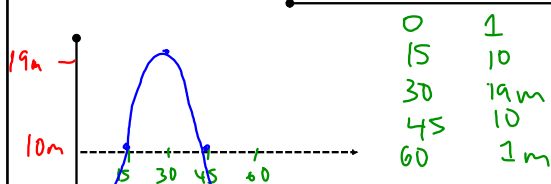
Amplitude- 9 (max - axis of symmetry)

Nov 17-7:36 AM

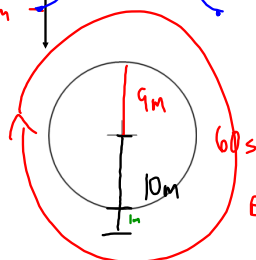
p.348

3. Sketch a height-versus-time graph of the sinusoidal function that models each situation. Assume that the first point plotted on each graph is at the lowest possible height.

- a) A Ferris wheel with a radius of 9 m, whose axle is 10 m above the ground, and that rotates once every 60 s



Max- 19m
Min- 1m
Equation of Axis- 10
Period- 60s
Amplitude- 9m

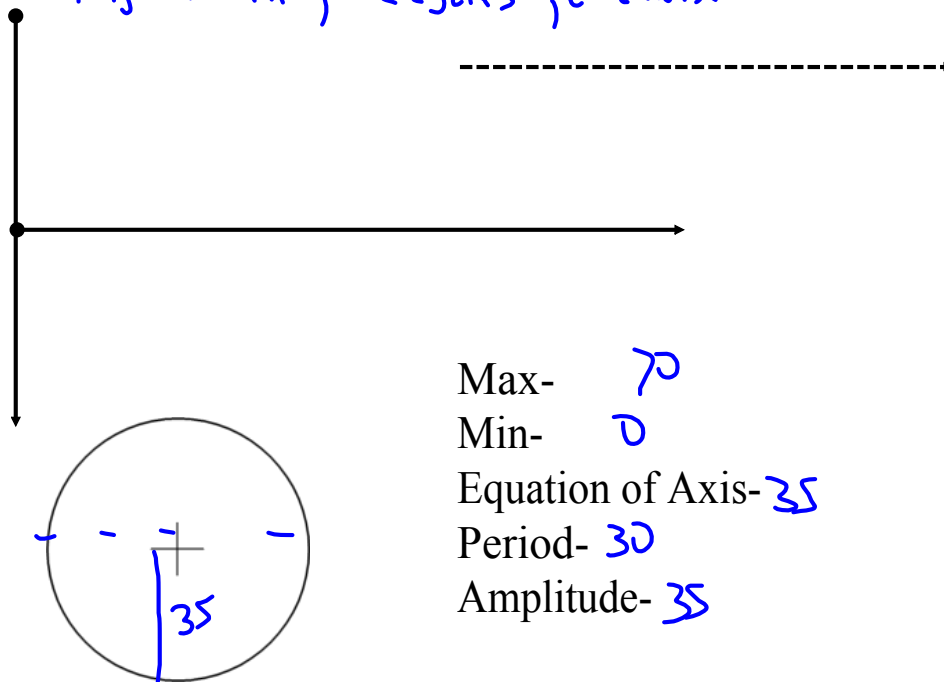


$$\begin{aligned} \text{Eqn of Axis} &= \frac{\text{Max} + \text{Min}}{2} \\ &= \frac{19 + 1}{2} \\ &= 10 \end{aligned}$$

$$\begin{aligned} \text{Amp} &= \frac{\text{Max} - \text{Min}}{2} \\ &= \frac{19 - 1}{2} \\ &= 9 \end{aligned}$$

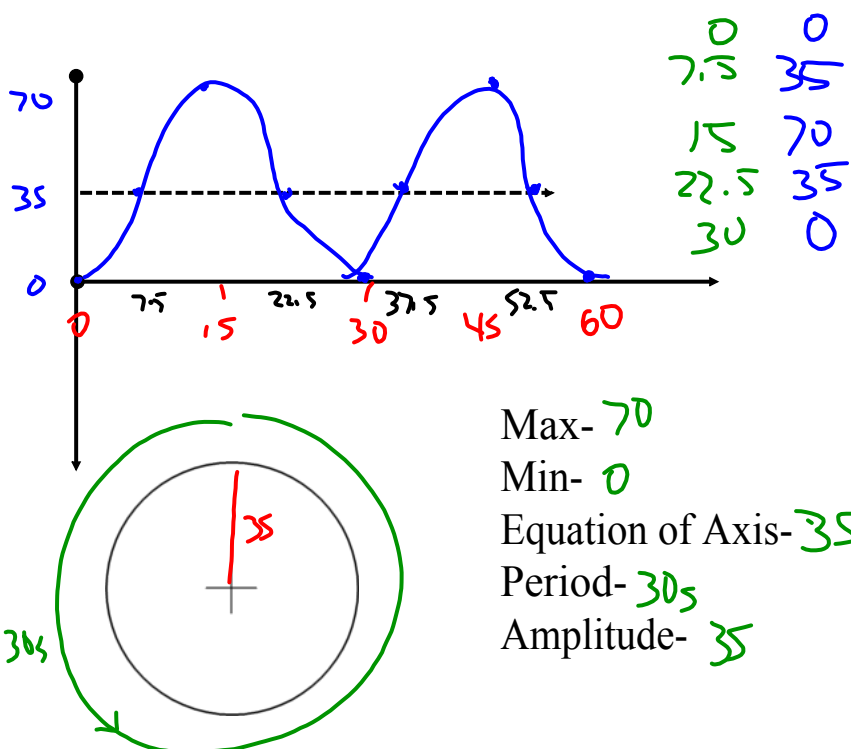
Nov 17-7:36 AM

- c) A bicycle tire with a radius of 35 cm and that rotates once every 30 s
running over nail } 2 cycles, clockwise

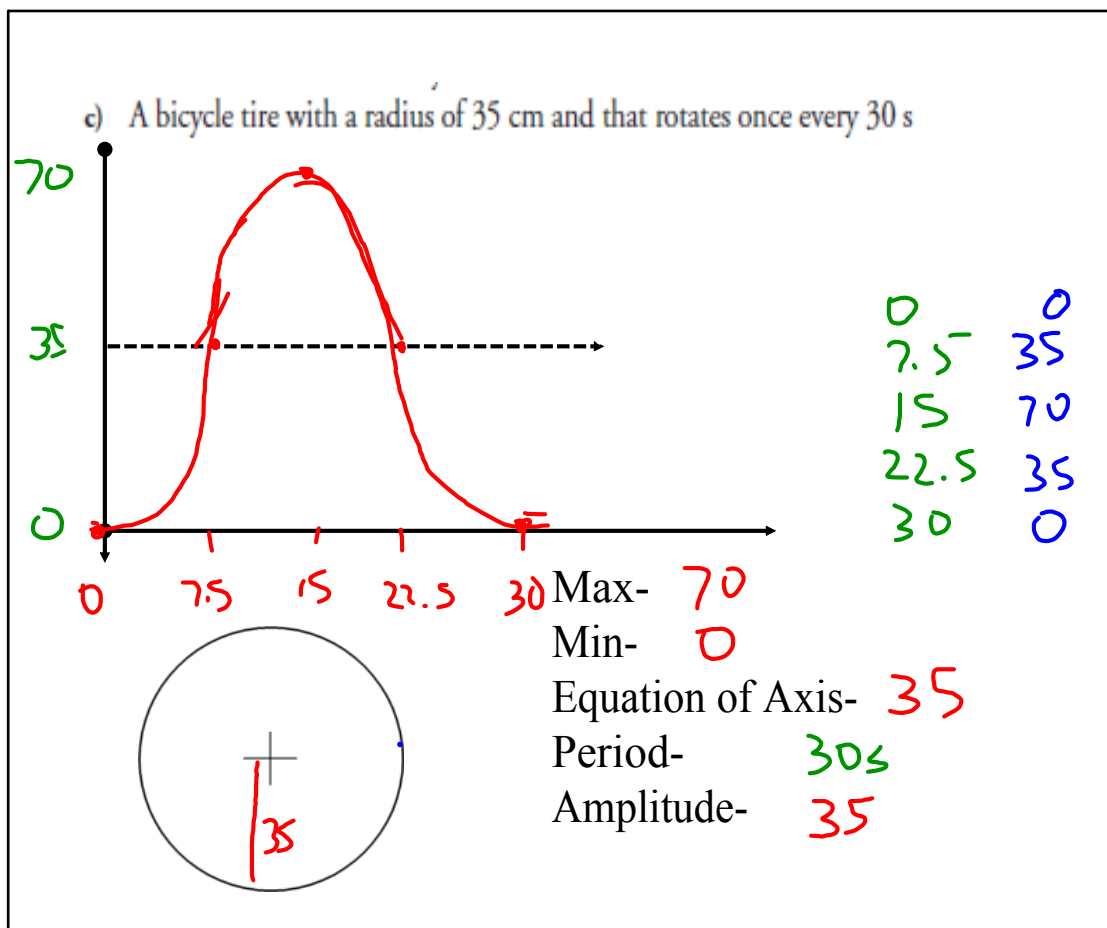


Nov 17-7:37 AM

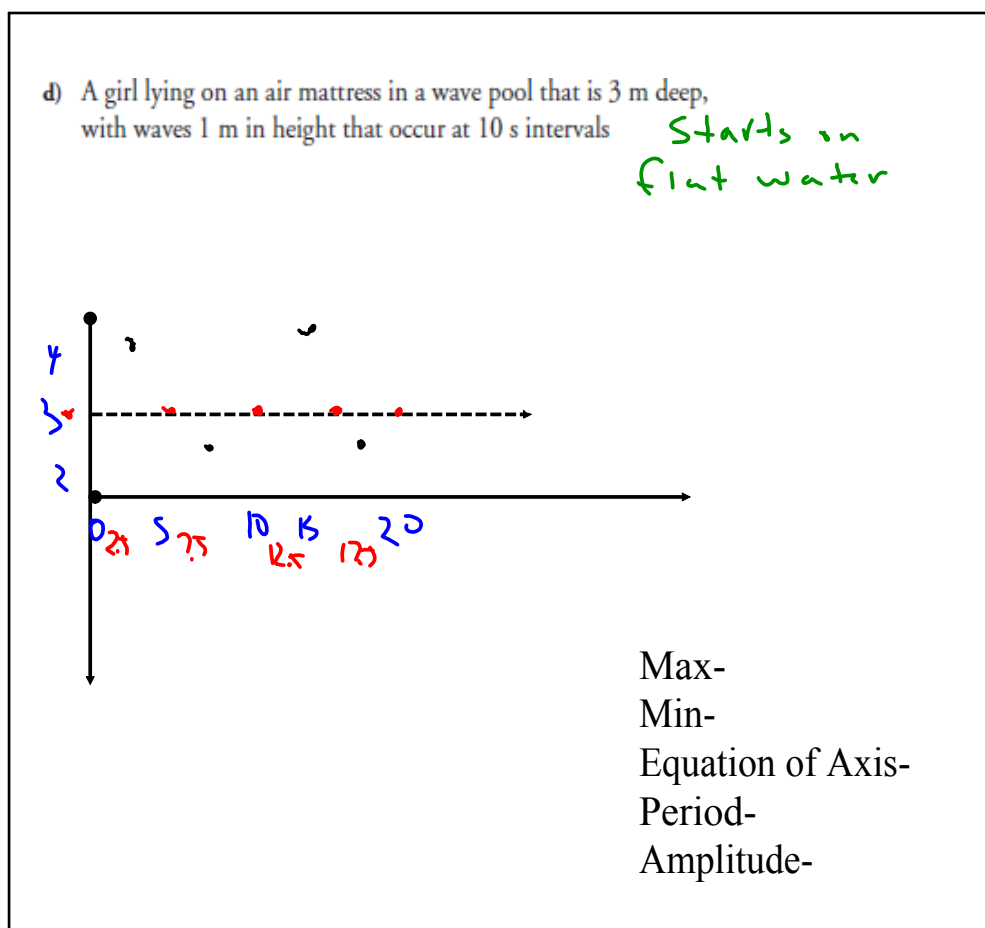
- c) A bicycle tire with a radius of 35 cm and that rotates once every 30 s



Nov 17-7:37 AM



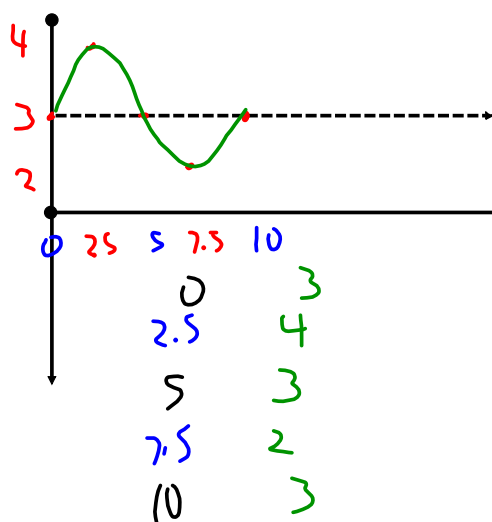
Nov 17-7:37 AM



Nov 17-7:37 AM

- d) A girl lying on an air mattress in a wave pool that is 3 m deep, with waves 1 m in height that occur at 10 s intervals

Starts in flat water



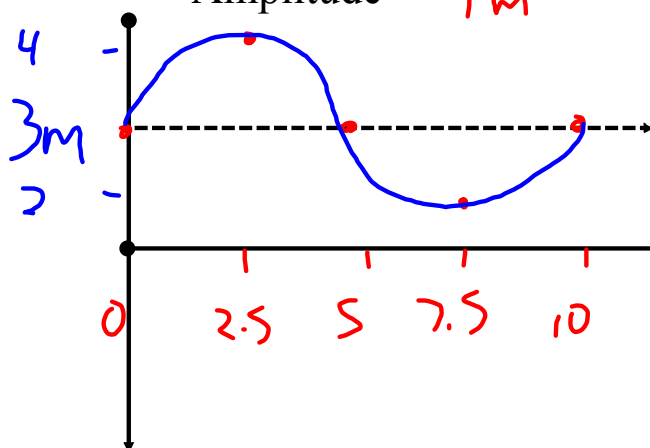
Max- 4
Min- 2
Equation of Axis- 3
Period- 10
Amplitude- 1

Nov 17-7:37 AM

- d) A girl lying on an air mattress in a wave pool that is 3 m deep, with waves 1 m in height that occur at 10 s intervals

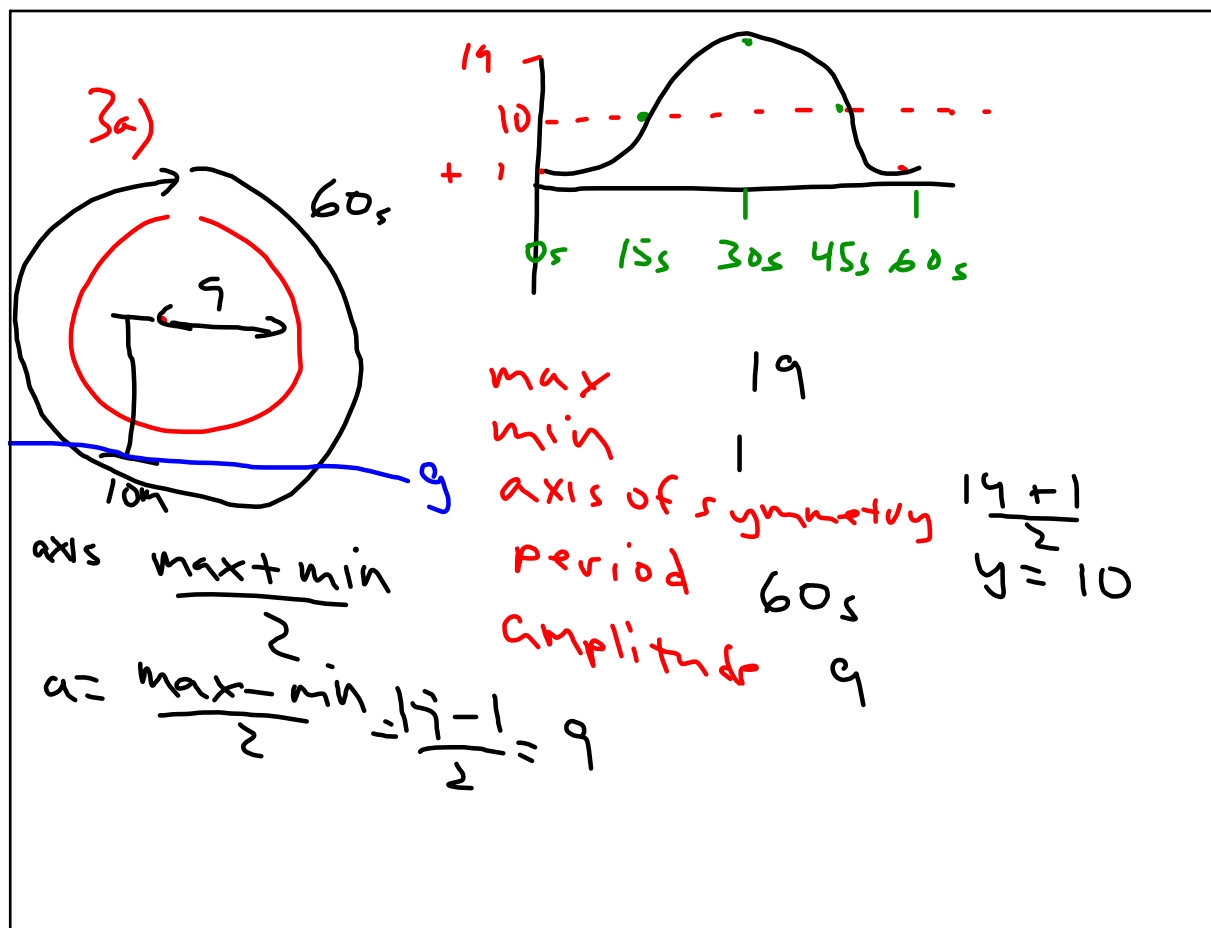
Starts in flat water

Max- 4m
Min- 2m
Equation of Axis- 3m
Period- 10s
Amplitude- 1m



0 3
2.5 4
5 3
7.5 2
10 3

Nov 17-7:37 AM



Apr 28-10:44 AM

Hmk

p 348-353 4-8 9-12

(desmos)

(mode -degrees)

Apr 28-7:55 AM